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AUTHOR	Wigfield, Allan; Tonks, Stephen
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ABSTRACT

This chapter discusses the development of achievement motivation during adolescence from the perspective of expectancy-value theory, and explains how adolescents' expectancies for success and achievement values change during adolescence, particularly during educational transitions such as that from elementary to middle school and from middle to high school. In particular, the chapter focuses on the development of children's expectancies and values during adolescence, as well as gender differences in these beliefs and values. The chapter begins with consideration of some of the major biological, psychological, and environmental changes that occur at adolescence and then presents an expectancy-value model of achievement choice as a framework for understanding early adolescence and adolescents' performance and choice. Research findings on the development of children's competence beliefs, expectancies for success, and achievement values are discussed, focusing on changes in the structure of children's motivational beliefs and values, and on changes in the mean level of their beliefs and values. Discussion of gender differences highlights differences in beliefs about competence and achievement task values. The chapter also considers how educational transitions influence adolescents' expectancies and values, and how these expectancies and values influence the choice of activities that adolescents pursue, as well as adolescents' performance in different academic areas. Discussion centers on the impact of middle school reform efforts on student motivation and ways to ease the educational transitions. The chapter concludes by summarizing empirical work on the links between expectancies, values, and academic outcomes, self-regulation, and the decision to stay in school. (Contains 113 references.) (KB)

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CHAPTER 3

ADOLESCENTS' EXPECTANCIES FOR SUCCESS AND ACHIEVEMENT TASK VALUES DURING THE MIDDLE AND HIGH SCHOOL YEARS

Allan Wigfield and Stephen Tonks
University of Maryland

Adolescence is a time in which individuals experience many changes, including the biological changes associated with puberty, changes in relations with family and peers, and the social and educational changes resulting from transitions from elementary to junior high school and junior high school to high school (see Eccles & Wigfield, 1997; Wigfield, Eccles, & Pintrich, 1996). Different theorists (e.g., Eccles & Midgley, 1989; Hill & Lynch, 1983; Midgley & Edelin, 1998) have proposed that these changes have significant impact on a variety of developmental outcomes. Many children make these changes relatively easily. Others, however, have difficulty with one or another of these changes and as a result are at risk for various negative outcomes. We focus in this chapter on the development of adolescents' achievement motivation. We take an expectancy-value approach to motivation, and so the particular focus of our chapter concerns the development during adolescence of expectancy-related beliefs and task values.

Expectancy-value theory has provided one of the most important views on the nature of achievement motivation, beginning with Atkinson's (1957) seminal work and continuing through the work of Battle (1965,

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1966), the Crandalls (e.g., Crandall, 1969; Crandall, Katkovsky, & Crandall, 1965; Crandall, Dewey, Katkovsky, & Preston, 1964), Feather (1982, 1988, 1992), and Eccles, Wigfield, and their colleagues (e.g., Eccles, 1984, 1993; Eccles et al., 1983; Wigfield, 1994a; Wigfield & Eccles, 1992, 2000, 2002b). Theorists adopting this perspective posit that individuals' expectancies for success and the value they have for succeeding are important determinants of their motivation to perform different achievement tasks, and their choices of which tasks to pursue. Atkinson originally defined expectancies as individuals' anticipations that either success or failure will follow their performance. He defined value as the relative attractiveness of succeeding or failing at a task.

Eccles, Wigfield, and their colleagues have extended Atkinson's (1957) work in important ways. They expanded upon Atkinson's original definitions of expectancy for success and task value (Eccles, 1993; Eccles et al., 1983), discussed the nature of achievement values (Parsons & Goff, 1980; Wigfield & Eccles, 1992), focused on how expectancies and values develop during childhood and adolescence (Wigfield, 1994a; Wigfield & Eccles, 2002b), and compared the expectancy and value constructs to related constructs in the motivation literature (Wigfield & Eccles, 2000). In this chapter, we focus in particular on the development of children's expectancies and values during adolescence, as well as gender differences in these beliefs and values. We discuss how educational transitions and different educational environments influence adolescents' expectancies and values. We also discuss how children's expectancies and values relate to their achievement behaviors and activity choices. We begin the chapter with a brief consideration of some of the major changes that occur at adolescence.

BIOLOGICAL, PSYCHOLOGICAL, AND ENVIRONMENTAL CHANGES DURING ADOLESCENCE

The biological changes associated with puberty are among the most dramatic ones that individuals experience during their lifetimes. In part because of these dramatic biological changes, different theorists portray the early adolescent period as a period of "storm and stress," where there is a great deal of conflict between children, parents, and teachers (e.g., Blos, 1979; Hall, 1904). We have heard teachers (and parents) say, "If we could just lock kids up for those years, things would be fine!" With such prevailing sentiments, perhaps it is little wonder that early adolescents' motivation undergoes important changes. While it is undeniable that major physical changes occur during early adolescence, many researchers now believe that the characterization of this time period as one of storm and stress is an overstatement (see, e.g., Arnett, 1999; Dornbusch, Petersen, & Hetherington, 1991). Yet Lerner,

Entwisle, and Hauser (1994) again used the term "crisis" in their description of the state of contemporary American adolescents. Whether or not adolescents are in crisis, the biological changes they go through do have many influences on their thinking and behavior, and the adolescent time period does pose challenges for many adolescents (Arnett, 1999).

One important educational implication of the work on pubertal changes and their effects concerns the issue of timing for the transition from elementary to secondary school. Many researchers and educational policy analysts urged that middle school should begin earlier, so that students make the school transition before they enter puberty. The concern is that dealing both with puberty and school changes make both transitions more complex (see Wigfield et al., 1996). Many school districts have followed this advice. Middle school now often encompasses sixth through eighth grade, rather than seventh through ninth grade. Others have argued that a K–8 organizational structure may be most beneficial to early adolescents. There is increasing awareness among educators that this is a unique developmental phase that requires careful structuring of educational environments. This matter is further complicated by the fact that boys and girls go through puberty at different times, making it very difficult to time the school transition to avoid the pubertal transition.

Children's thinking also changes during the adolescent years (see, e.g., Byrnes, 1988; Keating, 1990; Moshman, 1999). For our purposes the most important changes to note are the increasing propensity of children to think abstractly, consider the hypothetical as well as the real, engage in more sophisticated and elaborate information-processing strategies, consider multiple dimensions of a problem at once, and reflect on oneself and on complicated problems (see Keating, 1990, and Moshman, 1999, for more complete discussion). Such changes have potentially important influences on children's learning. They also have important implications for individuals' self-concepts and motivation. Theorists such as Erikson (1963) and Harter (1990) view the adolescent years as a time of change in children's self-concepts, as young people consider what possibilities are available to them and try to come to a deeper understanding of themselves. These sorts of self-reflections require the kinds of higher-order cognitive processes just discussed. With motivation increasingly conceived in cognitive terms, these changes also have implications for early adolescents' motivation, and the relations of motivation to behavior.

Finally, many aspects of adolescents' social environments change. Most adolescents go through two school transitions, one from elementary to middle school, and one from middle to high school. The environments in these settings are quite different from one another, and so students have to adjust to them in many ways. These transitions, particularly the middle school transition, have a strong impact on many students' motivation.

Another crucial change in adolescents' social environments is the stronger influence of peers and amount of time spent with them, and the corresponding decrease in amount of time spent with parents. Students' social worlds thus change in many ways during this important time. With this information as a backdrop, we return to a consideration of the development of children's expectancies and values.

ECCLES, WIGFIELD AND COLLEAGUES' EXPECTANCY VALUE MODEL

Eccles and colleagues (1983) developed an expectancy-value model of achievement choice as a framework for understanding early adolescence and adolescents' performance and choice in the mathematics achievement domain. A recent version of the model is presented in Figure 3.1. Eccles and colleagues proposed that children's achievement performance, persistence, and choice of achievement tasks are most directly predicted by their expectancies for success on those tasks and the subjective value they attach to success on those tasks. Children's expectancies and values themselves are most directly determined by other achievement-related beliefs, including children's achievement goals and self-schemata, and their task-specific beliefs (defined as beliefs about ability or competence and task difficulty beliefs). Children's interpretations of their previous performance and their perceptions of socializers' attitudes and expectations influence their goals and task-specific beliefs. Aspects of children's cultural milieu, characteristics of the child such as their aptitude, their previous performance, and important socializers' beliefs and behaviors, influence children's perceptions and interpretations. Because the model is developmental, there is a feedback loop from current performance and choice back to the beginning of the model, showing the bidirectional influences of these different factors.

For theoretical clarity it is crucial to define the expectancy and value constructs in the model (see also Wigfield & Eccles, 2000). Expectancies for success are defined as children's beliefs about how well they will do on an upcoming task. Beliefs about competence refer to children's evaluations of their competence in different areas. Related constructs also are prominent in other motivation models, in particular Bandura's (1997) self-efficacy theory, Covington's (1984, 1992) self-worth approach, Dweck and her colleagues' work on perceptions of intelligence (Dweck & Leggett, 1988), Ryan and Deci's (2000) self-determination perspective, and Weiner's (1979, 1985) attribution theory; these related constructs are discussed in other chapters in this volume.

Wigfield and Eccles (2000) discussed how the definitions of the expectancy and ability belief constructs in our expectancy-value model differ

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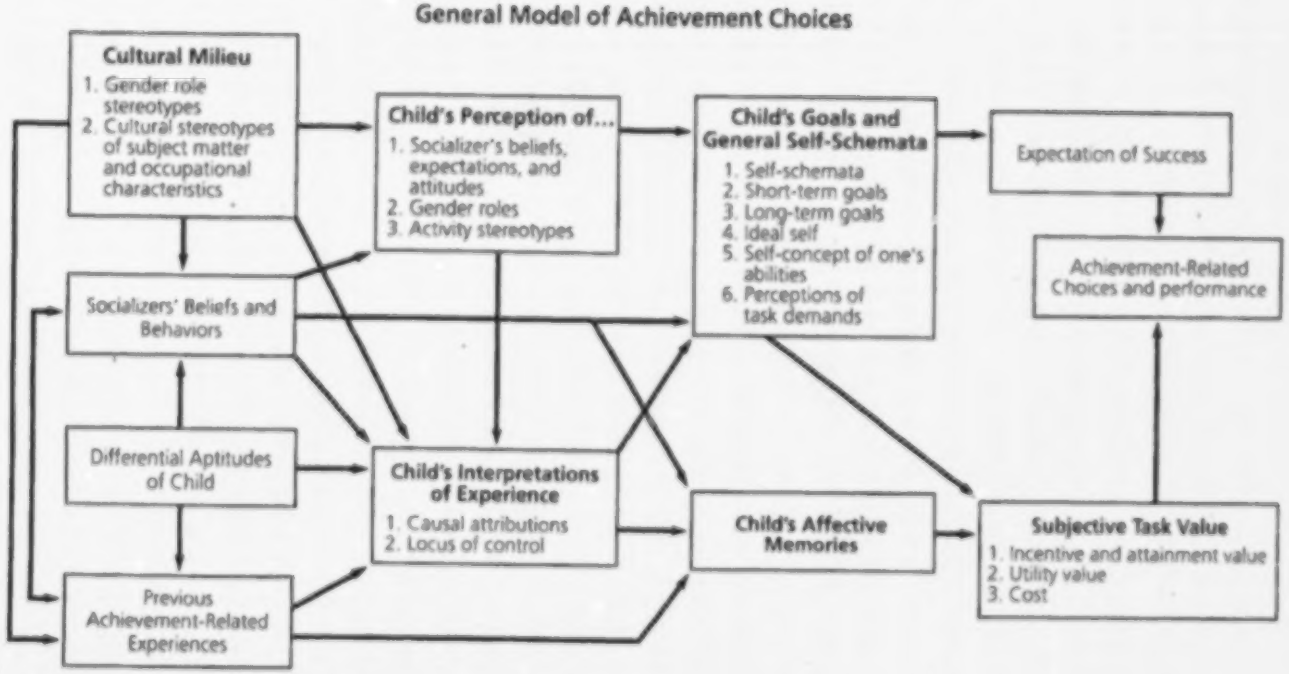

57 Figure 3.1. Expectancy-value model of achievement choice.

from these other constructs (see also Pajares, 1996). Crucial differences include the level of specificity at which the constructs are defined and measured, and whether the focus primarily is on one's sense of one's own competence, or one's competence in comparison to that of others. For instance, Bandura's (1997) construct of self-efficacy usually is measured quite specifically and emphasizes individuals' own sense of whether they can accomplish a task. By contrast, other theorists often measure competence-related beliefs more generally (e.g., Dweck, 2002; Skinner, Zimmer-Gembeck, & Connell, 1998). We tend to measure these constructs at the domain-specific level (e.g., How good are you at math?), and to include individuals' comparative sense of competence along with their beliefs about their own ability. These are important differences, but a crucial similarity is that the individual's sense of competence is a key part of many models of motivation.

Values have both broad and more specific definitions. Rokeach (1973, 1979) broadly construed values as beliefs about desired end states. He identified a set of values that he believed were fundamental to human experience; some of these values concerned achievement. Schwartz (1992) also theorized about broad human values, listing 10 such values, with achievement included as one of them (see Rohan, 2000, for a review of these theories). In the achievement motivation literature, subjective task values have been defined more specifically as how a task meets the different needs of individuals (Eccles et al., 1983; Wigfield & Eccles, 1992). Task values are a crucial part of the model because they influence individuals' choices. Individuals may feel competent at a given activity but not engage in it because it has no value for them.

Eccles and colleagues (1983) proposed four major components of subjective values: attainment value or importance, intrinsic value, utility value or usefulness of the task, and cost (see Eccles et al., 1983, and Wigfield & Eccles, 1992, for more detailed discussion of these components). Building on Battle's (1965, 1966) work, Eccles and colleagues defined attainment value as the importance of doing well on a given task. More broadly, attainment value also deals with identity issues; tasks are important when individuals view them as central to their own sense of themselves. Intrinsic value is the enjoyment one gains from doing the task; this component is similar in certain respects to notions of intrinsic motivation (see Harter, 1978; Ryan & Deci, 2000). Utility value or usefulness refers to how a task fits into an individual's future plans, for instance, taking a math class to fulfill a requirement for a science degree. Cost refers to what the individual has to give up to do a task (e.g., Do I do my math homework or call my friend?), as well as the anticipated effort one will need to put into task completion. Sample items measuring these constructs can be found in Wigfield and Eccles (2000).

DEVELOPMENT OF CHILDREN'S COMPETENCE BELIEFS, EXPECTANCIES FOR SUCCESS, AND ACHIEVEMENT TASK VALUES

We and others have done extensive work on the development of children's competence beliefs, expectancies for success, and achievement values, examining change in the ways in which children and adolescents conceptualize different motivational constructs, change in the structure of children's motivational beliefs and values, and changes in the mean level of their beliefs and values (see Eccles, Wigfield, & Schiefele, 1998; Wigfield, 1994a; Wigfield & Eccles, 2002b, for review). We focus here on the latter two kinds of change.

The Structure of Children's Competence Beliefs and Values

In our expectancy-value model, children's competence beliefs, expectancies for success, and achievement values are proposed to be distinct constructs. We have empirically assessed whether this is the case by factor-analyzing children's responses to questionnaire measures of these constructs. We found that even during the early elementary school years, children have distinct beliefs about what they are *good* at and what they *value* in different domains (Eccles & Wigfield, 1995; Eccles, Wigfield, Harold, & Blumenfeld, 1993). This finding is crucial for the expectancy-value model.

Three other findings from this work are important to note. First, Eccles and Wigfield (1995) and Eccles and colleagues (1993) looked at whether children's competence beliefs and expectancies for success are distinct constructs, as is proposed in the Eccles and colleagues (1983) model. Children in their studies were in Grades 1 through 12. Results of confirmatory factor analyses showed that children's competence beliefs and expectancies for success load on the same factor; hence these components are not empirically distinct. Therefore, two of the constructs proposed as separate in the model (competence beliefs, expectancies for success) relate closely to one another. Second, these researchers also examined how distinct the different components of task value are, and found that they are less differentiated during the elementary school years and become differentiated during early adolescence (Eccles & Wigfield, 1995; Eccles et al., 1993). That is, by adolescence, children's attainment, interest, and utility value form distinct but related constructs.

Third, these researchers, and others doing work in the broader self-concept literature, have found that, even during the early elementary school years, children distinguish different domains of competence, including math, reading, general school, physical ability, physical appearance, peer

relations, parent relations, and general self-concept (Bong, 2001; Eccles et al., 1993; Harter, 1982; Marsh, 1989; Marsh, Craven, & Debus, 1991, 1998). This is an important finding because it shows that children have a differentiated sense of their competence. Children's valuing of achievement also factors by domain, indicating that values are differentiated as well (Bong, 2001; Eccles et al., 1993). Recall that in the expectancy-value model, their expectancies and values most directly predict value model children's performance and choice. The findings that these beliefs and values are differentiated suggest that such relations need to be examined at relatively specific levels.

Changes in the Mean Level of Children's Expectancy-Related Beliefs and Values

Several researchers have found that children's competence beliefs and expectancies for success for different tasks decline across the elementary school years and into the middle school years (see Dweck & Elliott, 1983; Eccles et al., 1998; Stipek & Mac Iver, 1989, for review). To illustrate, Nicholls (1979) found that most first graders ranked themselves near the top of the class in reading ability, and there was no correlation between their ability ratings and their performance level. The 12-year-olds in his study had reading ability beliefs that were more dispersed and correlated highly with school grades. In a longitudinal study of elementary school-aged children's competence beliefs and values of math, reading, sports, and instrumental music, Wigfield and colleagues (1997) found that children's beliefs and values declined across age and also related more closely to parents' and teachers' ratings of their ability. Across the elementary school years, children's expectancies for success become more sensitive to both success and failure experiences and more accurate or realistic in terms of their relation to actual performance history (see Assor & Connell, 1992; Eccles, Wigfield, & Schiefele, 1998; Parsons & Ruble, 1977; Stipek, 1984).

What happens during adolescence? Wigfield, Eccles, Mac Iver, Reuman, and Midgley (1991) studied change in children's competence beliefs and values across the transition from elementary to junior high school. The questionnaire contained items assessing early adolescents' ability beliefs and values for math, English, social, and sports activities, as well as their general self-esteem. Students' general self-esteem was lowest in the fall of Grade 7, immediately after the school transition. Although students' self-esteem increased somewhat during Grade 7, it remained lower than self-esteem at Grade 6. Students' ability beliefs regarding math, English, and

social activities showed the largest decreases between the spring of Grade 6 and fall of Grade 7, suggesting a transition effect.

The interest and importance aspects of task value were examined separately in this study. Early adolescents' liking of math was quite similar in the fall and spring of Grade 6 but declined across the transition. Students' liking of English and social activities was highest in the spring of Grade 6, declined across the transition, and then increased somewhat during Grade 7. Early adolescents' ratings of the importance of these activities also decreased between Grade 6 and Grade 7, with the largest differences for English and social activities occurring across the transition to junior high school.

One of the most striking findings was the strong differences in early adolescents' liking of academic and nonacademic activities. Perhaps not surprisingly, they greatly preferred the nonacademic activities (social and sports activities) to the academic activities (math and English), and they liked social activities more than any of the other activities. Early adolescents also rated social activities as most important to them. However, although sports was their second most *liked* activity, math was the activity rated second most *important* by early adolescents. In fact, participants rated sports as the least important of the four activities! The differences between liking and importance ratings illustrate the necessity of assessing different aspects of students' valuing of different activities.

Jacobs, Lanza, Osgood, Eccles, and Wigfield (2002) examined change in children's competence beliefs and valuing of math, language arts, and sports across grades 1 through 12, following the same sample that was studied by Wigfield and colleagues (1997). The overall pattern of change was a decline in each domain. There were some differences across domain with respect to when the strongest changes occurred, particularly in language arts and math. In language arts the strongest declines occurred during elementary school and then little change was observed after that. In sports, the change accelerated during the high school years. The declines in math competence beliefs were similar over time. Jacobs and colleagues found that children's valuing of the domains of math, language arts, and sports also declined. As was the case for competence beliefs, children's valuing of language arts declined most during elementary school and then leveled off. By contrast, children's valuing of math declined the most during high school.

The negative changes in children's competence-related beliefs and achievement values have been explained in two ways. The first concerns children's ability to process evaluative information. They become much better at understanding, interpreting, and integrating the evaluative feedback they receive, and of course they receive more extensive evaluative information from different academic and nonacademic activities they do in and out of school. They also engage in more social comparison with their peers. As a

result of these changes, many children become more accurate or realistic in their self-assessments as they get older, with a corresponding drop in the initial optimism that characterizes many children's beliefs and values. (see Dweck & Elliott, 1983; Eccles et al., 1998; Nicholls, 1984; Parsons & Ruble, 1977; Ruble, 1983; Stipek & Mac Iver, 1989). Second, the environments children encounter change in ways that make evaluation more salient and competition between students more likely, with the result that some children's self-assessments will decline as they get older (see, e.g., Blumenfeld, Pintrich, Meece, & Wessels, 1982; Eccles & Midgley, 1989; Eccles, Midgley, & Adler, 1984; Wigfield, Eccles, & Pintrich, 1996).

Gender Differences in Competence-Related Beliefs and Expectancies for Success

Before discussing gender differences, some words of caution are in order. As other authors have pointed out, drawing conclusions about such differences must be done carefully (see Eisenberg, Martin, & Fabes, 1996; Ruble & Martin, 1998). Although such differences often are observed, in general they tend to be relatively small in terms of the amount of variance explained (e.g., Marsh, 1989). Thus there often is substantial overlap between different groups in the many different variables measured in studies of gender differences. Individual differences *within* groups typically are stronger than mean differences *between* groups. Even with these cautions in mind, there are reliable differences between various groups, and these differences are discussed in this section.

Gender Differences in Beliefs About Competence

Gender differences in competence-related beliefs during childhood and adolescence often are reported, particularly in gender-role stereotyped domains and on novel tasks (see Wigfield, Battle, Keller, & Eccles, 2002). For example, boys hold higher competence beliefs than do girls for math and sports, even after all relevant skill-level differences are controlled. By contrast, girls have higher competence beliefs than do boys for reading, English, and social activities (Eccles, 1984; Eccles et al., 1989; Huston, 1983; Marsh, 1989; Marsh et al., 1998; Wigfield et al., 1991; Wigfield et al., 1997). These differences emerge remarkably early. Wigfield and colleagues' (1997) longitudinal study of children's competence beliefs and valuing of different activities began when children were in Grade 1. Results showed that boys had higher competence beliefs for math and sports, and girls for English, even among the first graders. The age differences in

beliefs did not change over time. Marsh and colleagues' (1998) study of self-concepts included kindergarteners, and results were similar to those of Wigfield and colleagues.

Few studies have looked at long-term change in children's competence beliefs. Jacobs and colleagues (2002) followed the children in the Wigfield and colleagues (1997) study through the end of high school, and found that gender differences in math competence beliefs narrowed by the end of high school. Gender differences in English competence beliefs are strongest at the end of elementary school and through middle school. Differences favoring girls remain at the end of high school, but also are smaller than during the earlier school years. In the sport domain, boys' competence beliefs are higher even at Grade 1, and the differences remain throughout the school years.

The extent to which children endorse the cultural stereotypes regarding which sex is likely to be most talented in each domain predicts the extent to which girls and boys distort their ability self-concepts and expectations in the gender stereotypic direction (Early, Belansky, & Eccles, 1992; Eccles & Harold, 1991). That is, boys who believe that in general boys are better in math are more likely to have more positive competence beliefs in math. However, these gender differences are not always found (e.g., Dauber & Benbow, 1990; Schunk & Lilly, 1982) and, when found, are generally quite small (Marsh, 1989; Marsh et al., 1998).

In sum, reliable gender differences in beliefs about competence for different activities have been found. One reason these differences are important is because competence-related beliefs are strong predictors of performance and task choice (Bandura, 1997; Eccles et al., 1983; Meece, Wigfield, & Eccles, 1990). Researchers looking at relations of competence beliefs to performance do not find sex differences in these relations; the links are as strong for girls as for boys (Meece et al., 1990). But given that the sexes differ in their level of competence beliefs for different activities, performance differences may in part reflect these beliefs. For instance, on average, girls doubt their competence in math more than boys do, and this likely influences their performance in math as well as their decisions about whether to continue doing math activities. Boys doubt their competence more in reading, again likely influencing their performance and choice.

Gender Differences in Achievement Task Values

Eccles, Wigfield, and their colleagues have found gender-role stereotypic differences in both children's and adolescents' valuing of mathematics, music, sports, social activities, and English/reading (e.g., Eccles et al., 1989, 1993; Wigfield et al., 1991, 1997). Across these studies, boys value

sports activities more than girls do, although girls also value them highly. Relative to boys, girls value reading, English, and instrumental music more. Interestingly, recent work indicates that boys and girls value math equally (Eccles et al., 1993; Wigfield et al., 1997; Jacobs et al., 2002); in earlier work, gender differences in the value of math emerged in high school (Eccles, 1984). Jacobs and colleagues (2002) found that the differences in boys' and girls' valuing of sport activities narrowed by the end of high school.

Values also can be conceived more broadly to include things such as notions of what are appropriate activities for males and females to do. There is an extensive literature on gender differences in activities and interests (see Eisenberg et al., 1996; Ruble & Martin, 1998). Starting early on, boys and girls do very different activities and play with quite different toys. In research done prior to the 1980s, elementary school-aged children often classified school subjects as either masculine or feminine (see Huston, 1983). Math and science were viewed as masculine, and reading/English and the arts as feminine. This no longer appears to be the case, as gender stereotyping of school subjects now is less consistent (see Etaugh & Liss, 1992).

Although school subjects no longer appear to be clearly gender stereotyped, as just reviewed, boys' and girls' valuing of English, sports, and social activities differ in gender stereotypic ways, although they value math similarly. However, by adolescence, girls report less interest in science than do boys, and are much less likely to enroll in science and technically oriented classes or pursue these areas for their careers (see Gardner, 1998, for review). Explanations for these differences in interests and activity preferences have focused on several things, including children's understanding of what is appropriate for each sex to do. Children's understanding of stereotypes about what are gender-appropriate activities increase across the childhood years (see Eisenberg et al., 1996, and Ruble & Martin, 1998, for further discussion). From the perspective of the constructs discussed in this chapter, perhaps children develop more positive competence-related beliefs and values for activities they believe are appropriate for their gender, and thus engage more in those activities. Parents likely contribute to these differences through the toys they provide and activities they encourage children to do (see further discussion later). Peers have a strong role as well (Eisenberg et al., 1996).

During adolescence other values-related issues become crucial. One that is relevant to this chapter is the value young women place on family versus a career. Earlier work indicated that adolescent females often felt conflicts about whether to emphasize either family or career, and many young women chose to emphasize family at the expense of career. More recent studies indicate that young women perceive less conflict in these

two roles, often believing that they can manage both successfully (see Battle & Wigfield, 2002). This likely is a positive change in many ways, but young women may underestimate the time and effort needed to perform competently in both roles. From the perspective of this chapter, the crucial point is that the stronger valuing of careers is likely something leading more women to pursue their careers avidly.

In summary, as with competence beliefs, there are gender differences in children's and adolescents' valuing of different activities, and their interest in them. These differences potentially have important implications for adolescents' choices of which activities to do, a point to which we return later.

EDUCATIONAL TRANSITIONS AND STUDENTS' EXPECTANCIES AND VALUES

We noted earlier how changes in school environments can influence the development of expectancies and values, and contribute to the decline in them that had been observed. Many adolescents make two major educational transitions, from elementary to middle school, and middle school to high school. How these transitions influence adolescents' expectancies and values is considered next.

The Transition to Traditional Middle School

Most children in this country go to elementary school from kindergarten through fifth or sixth grade, and then transition to middle school or junior high school. Such schools differ structurally in important ways from elementary schools (see Eccles & Midgley, 1989, and Wigfield & Eccles, 2002a, for a detailed review). Most are substantially larger than elementary schools because they draw students from several elementary schools. As a result, students' friendship networks often are disrupted as they attend classes with students from several different schools. Students also are likely to feel more anonymous because of the large size of many middle schools. Instruction is likely to be organized and taught departmentally. Thus middle school teachers typically teach several different groups of students each day and are unlikely to teach any particular students for more than one year. This departmental structure can create a number of difficulties for students. One is that the curriculum often is not integrated across different subjects. A second difficulty is that students typically have several teachers each day with little opportunity to interact with any one teacher on any dimension except the academic content of what is being taught and disci-

plinary issues. Finally, family involvement in school often declines during the middle school years.

Researchers also have discussed how instructional practices, and ways in which teachers and students relate to each other, can negatively impact students' motivation in traditional junior high and middle schools (Eccles & Midgley, 1989; Maehr & Midgley, 1996; Wigfield et al., 1996; see Wigfield & Eccles, 2002a, for a recent review). Changes in instructional practices include things such as an increase in the use of between-classroom ability grouping practices, as well as the use of more rigorous and rigid grading standards. Teacher–student relationships become more authority based and less personal, in large part because teachers have so many more students to deal with. Middle school teachers have a lower sense of teaching efficacy than do elementary school teachers. Finally, as noted above, peer networks are disrupted when children change schools. Many times friends are separated from one another, and it takes time for children to reestablish social networks. Wigfield and colleagues (1991) found that children's sense of social competence was lowest immediately after the transition to junior high school, in comparison to before the transition, or later in junior high school. Such disruptions could influence children's academic motivation as well.

Eccles and Midgley (1989) argued that a main reason these things have a negative impact is that they are developmentally inappropriate for early adolescents. At a time when the children are growing cognitively and emotionally, desiring greater freedom and autonomy, and focusing on social relations, they experience school environments that do not promote these things. Therefore, for many early adolescents these practices contribute to the negative change in students' motivation and achievement-related beliefs. What has been done about these problems? That is the topic of the next section.

Middle School Reform Efforts and Student Motivation

In response to the issues discussed above, many school districts have changed middle-grade schools in important ways. There is growing consensus about what kinds of changes should be made in middle-grade schools (Lipsitz, Mizell, Jackson, & Austin, 1997). One structural change adopted in many school districts has been to move the transition to middle school from after to before Grade 6. This change on its own accomplishes little; what is more important is changing school organization and instructional practices in systematic ways (Mac Iver & Epstein, 1993).

Various groups have recommended a number of important changes in school organization and instructional practices (see Mac Iver, Young, &

Washburn, 2002, and Wigfield & Eccles, 2002a, for review). One major change is replacing department structures with teams of teachers working with the same group of students. This practice allows groups of teachers to spend more time with the same group of adolescents, thus getting to know them better. It also allows for greater integration across the curriculum. A second change is having teachers serve as advisors and counselors so that adolescents can develop relationships with adults other than their parents. A third is to create smaller learning communities in often-large middle schools; "schools within schools" have been created in part through the teaming approach just discussed. This is particularly likely to occur for the youngest group in a middle school, be they fifth graders, sixth graders, or seventh graders. Cooperative learning practices are used more frequently, in part to reduce the use of ability grouping or tracking.

How many middle schools have adopted such changes? Mac Iver and Epstein (1993) reported results of a study of teaching practices in middle schools across the country. They found that many school districts have not adopted the "school within a school" approach for making middle schools seem smaller. Forty percent of middle schools use tracking for math and English, and 20% use it for all subjects. Seventy five percent of schools have advising periods for students, although Mac Iver and Epstein noted that many of these are used primarily for school business, such as attendance taking and announcements, rather than for "true" advising and counseling. Close to 40% of middle schools reported using some kind of interdisciplinary teaming, but few of these schools allowed for team planning periods. Only 10% of the schools have teaming programs that allow teachers regular times for planning their academic programs. It should be clear from these data that implementation of the recommendations is occurring slowly. Mac Iver and Epstein asked principals to forecast how their schools would change over the next few years. Principals were most likely to mention teaming with planning periods, students assigned to the same advisory teacher for the entire time they are in middle school, flexible scheduling, and greater use of cooperative learning.

What about students' motivation in reformed middle schools? Some evidence is beginning to be gathered. Maehr and Midgley (1996) presented an account of their collaborative effort to change the cultural organization of an elementary and a middle school using motivational principles stemming primarily from achievement goal theory. Through collaborations with teachers and school administrators, different practices in the school were changed in order to facilitate mastery rather than ability-focused goal orientations. They focused on creating teams of teachers, "schools within a school," and changing student recognition patterns so that student improvement rather than just ability were recognized. Other practices were changed as well. These changes were put in place in the

schools, though the processes by which that occurred often were challenging (see Maehr & Midgley, 1996, for a detailed discussion of the challenges they faced).

Anderman, Maehr, and Midgley (1999) assessed students' motivation in an elementary school participating in the project, as well as in the collaborating middle school and a comparison middle school in which the changes did not occur. Indeed, in the comparison school, competition between students and ability grouping were emphasized. There were few differences in students' motivation during elementary school. Following the transition to middle school, students in the comparison school had stronger performance goals and extrinsic goals for learning. These students also perceived a stronger emphasis in their school on performance goals. These shifts in students' motivation did not occur for the students in the collaborating school.

Mac Iver and his colleagues began a middle school reform effort that they called Talent Development Middle Schools (see Mac Iver & Plank, 1997, and Mac Iver et al., 2002, for a summary). This project is focused on reforming middle schools that serve early adolescents who are at risk because of the backgrounds from which they come. The program involves the implementation of many of the recommendations discussed in this section: detracking the schools, using cooperative learning extensively, team teaching, offering a challenging core curriculum (including algebra) to all students, and providing advising services. The program began in a few schools in Philadelphia and is spreading to other areas of the country. Preliminary results for both achievement and motivation outcomes is encouraging. Mac Iver and colleagues measured several motivation outcomes, including students' perceptions of their effort, sense of ability, and valuing of school learning, and students in the Talent Development schools were more positive in these aspects of motivation.

Mac Iver and colleagues (2002) looked at how instructional practices in science in middle schools participating in this program influenced students' motivation for science. The science instructional practices included an emphasis on hands-on science activities as well as opportunities to engage in higher-order thinking about the science activities (called a "minds-on" approach by Mac Iver and colleagues). The "minds-on" opportunities predicted students' value of learning science, expectancies for success, reported effort, and sense that the teacher cared about them. The hands-on activities predicted students' interest in science and perceptions of teacher caring. The researchers also looked at change in motivation over a school year in these students and found no evidence of a decline. Thus, when middle school students experience instructional practices that engage them, their motivation does not decline.

In summary, middle school reform efforts organized by a guiding set of principles are under way in middle schools across the country. However, despite the call for these changes and agreement on the principles to guide change, many middle schools have been slow to adopt them, or have not changed at all. Evidence from schools adopting the recommended changes suggests that students' motivation is enhanced in these middle schools; thus, the decline in student motivation that we have been discussing is not inevitable. This evidence is still sketchy, however; much more work is needed on how middle school reform efforts are influencing students' motivation along with their achievement. Following middle school, students face another important school transition. What happens during that transition?

The Transition to High School

There is less work on the transition to high school. In certain respects the transition from middle to high school may be easier than that from elementary to middle school, in part because the organizational structure of the two kinds of secondary schools is more similar. However, there are important challenges associated with this transition. High schools are typically even larger and more bureaucratic than are junior high schools and middle schools. Bryk, Lee, and Holland (1993) provided numerous examples of how the sense of community among teachers and students is undermined by the size and bureaucratic structure of most high schools. There is little opportunity for students and teachers to get to know each other, and, likely as a consequence, there is distrust between them and little attachment to a common set of goals and values. In many schools there is also little opportunity for the students to form mentor-like relationships with a nonfamilial adult, although this is beginning to change across the country. Such environments are likely to further undermine the motivation and involvement of many students, especially those not doing particularly well academically, those not enrolled in the favored classes, and those who are alienated from the values of the adults in the high school.

Academic pressure increases in high school (Newman, Lehman, Newman, Myers, & Smith, 2000). For the first time, grades matter in concrete ways to the future success of the students. If students plan on working full time after high school, then having a high school diploma is key to their future success. If students plan on continuing their education, then grades and test scores earned in high school are a large determinant of the kind of higher education they can pursue. Such pressures may increase the value that some students attach to doing well in school. For others, especially for those doing poorly, valuing of school activities likely decreases.

In high school, students' social worlds also change dramatically. As was the case during the transition to middle school, students' social worlds may be disrupted in important ways. In one sense, middle school can be seen as a bridge between a more innocent world of elementary school children and the more real-world setting of high school. For example, high school is the first place that many students encounter (either personally or vicariously) alcohol, drugs, gangs, and sex. These new social challenges combine with challenges familiar to middle school students to form a complicated setting for new high school students, which can make the already tougher academic workload even more difficult. These changes also can have strong influences on students' motivation.

Interviews with students after they enter high school confirm that they are concerned with many of the difficulties listed above. Newman and colleagues (2000) found that 55% of ninth graders mentioned that ninth grade was harder, and over 30% made negative comments about their teachers. That same percentage stated concerns about adjusting to a new school, attending a bigger school, and meeting new people.

Much of the research that has been done on the transition to high school has included measures of achievement in the analyses. A number of researchers have found declines in achievement after students move from a junior high or middle school to a high school (Alspaugh, 1998; Barone, Aguirre-Deandreis, & Trickett, 1991; Blyth, Simmons, & Carlton-Ford, 1983; Felner, Primavera, & Cauce, 1981; Isakson & Jarvis, 1999; Seidman, Aber, Allen, & French, 1996). Schiller (1999) found that the relationship between academic achievement before and after the transition to high school depended on the number of fellow eighth graders who attended the same high school. Students who were high achievers in Grade 8 benefited from attending a school with a majority of their fellow eighth graders, whereas low-achieving eighth-graders benefited from attending a high school different from those of most of their middle school classmates. However, these findings should be viewed with caution, as finding a comparable measure of achievement across a grade and school transition is a difficult task. When comparing GPA between Grades 8 and 9 or 9 and 10, and between schools, one must consider that the students are being rated by different teachers, being held to different standards, and being compared to different students. Another decline after the high school transition that has been noted in the literature is in school attendance (Barone et al., 1991; Felner et al., 1981; Isakson & Jarvis, 1999).

From the above findings it seems likely that adolescents' motivation would change in a negative direction across the high school transition. Murdock, Anderman, and Hodge (2000) measured aspects of students' motivation that are related to the expectancy and value constructs we are discussing, as well as students' perceptions of school context in Grades 7

and 9 in a system where students transitioned to high school after Grade 8. They found that students' academic self-concepts increased, as did the economic value they placed on education. Also, perceptions of teacher support and encouragement increased, whereas perceptions of teacher disrespect and criticism decreased, which indicates that students on average perceived their teachers in a more positive light after the transition to high school. The authors suggested that these positive changes could be due to a better match between high school teachers' treatment of students and students' developmental level, in contrast to the mismatch of these two things that has been proposed to occur during middle school (Eccles & Midgley, 1989).

In another study of high school students' motivation, Seidman and colleagues (1996) found an increase in academic self-efficacy and social self-efficacy over the transition. However, these researchers also found an increase in students' reported daily hassles and decreases in reported social support and involvement in extracurricular activities after the transition, perhaps reflective of the different structural environment of high school.

In summary, the transition to high school is potentially a crucial time for adolescents due to developmental changes and various changes in the school, academics, and social networks. Researchers have theorized that these changes could have profound effects on the achievement, motivation, and self-esteem of students. Findings show that, indeed, achievement and attendance do decline, along with some other negative outcomes such as a reported increase in daily hassles. Although the research is sparse, the transition does not appear to be related to negative motivation outcomes. Taken together, these findings paint a complex picture of the high school transition. The relationship between the negative achievement findings and the more positive motivation and self-esteem findings is not easily explained. Clearly, more research is warranted to clarify the sparse and somewhat confusing results.

Easing the Transition to High School

As has been the case with elementary to middle school, there have been efforts to ease the middle to high school transition. A complete review of this work is beyond the scope of this chapter; we highlight some relevant findings. Smith (1997) used national data to compare students who had access to different kinds of transition programs. She found that higher grades and a lower dropout rate were present in students who had access to "full" transition programs, which include programs targeting students, staff, and parents, as opposed to programs that target only one or two of these groups. Felner, Ginter, and Primavera (1982) added counseling and

liaison duties to homeroom teachers' responsibilities and also reorganized class schedules so that students and teachers had more classes together. When they compared this group to a control group, they found that students in this program had higher GPA, better attendance, and more stable self-concepts. Thus, easing the high school transition has positive impacts on various student outcomes. Few studies have examined how such efforts influence students' expectancies and values, however.

One possible reason that work on the high school transition is sparse is that the middle school transition remains the larger concern. As is evident from this chapter, more research has focused on the earlier transition. Nevertheless, we believe a more thorough examination of how the organization and structure of our high schools influences cognitive, motivational, and achievement outcomes is sorely needed.

EXPECTANCIES, VALUES, AND ACADEMIC OUTCOMES

Performance and Choice of Achievement Activities

A crucial part of our expectancy-value model is the predicted links of expectancies for success and achievement values to children's and adolescents' achievement outcomes, including their performance, persistence, and choices of which activities to undertake (e.g., Eccles, 1993; Eccles et al., 1983; Eccles, Wigfield, & Schiefele, 1998). We have obtained empirical support for these proposed links in longitudinal studies of children ranging from ages 6 to 18. The major findings from these studies are that even when levels of previous performance are controlled, students' competence beliefs strongly predict their performance in different domains, including math, reading, and sports. Students' achievement task values predict both intentions and actual decisions to keep taking mathematics and English and to engage in sports. Because expectancy beliefs and values relate positively to one another (Wigfield et al., 1997), it is important to note that competence-related beliefs have indirect effects on choice, whereas values have indirect effects on performance.

The relations just noted are evident in children as early as first grade, although the relations strengthen across age (Eccles, 1984; Eccles et al., 1983; Eccles & Harold, 1991; Meece et al., 1990). The relations become particularly strong during adolescence. For instance, Eccles (1984) showed that 5th- through 12th-grade students' expectancies for success predicted subsequent performance in math more strongly than did their achievement values. Students' valuing of math predicted their intentions to keep taking math more strongly than did their expectancies for success. Meece

and colleagues (1990) looked at these relations longitudinally and found similar results with respect to the prediction of performance and intentions. Eccles (1984) and Eccles, Adler, and Meece (1984) showed that 8th- through 10th-grade students' valuing of math strongly predicted their actual decisions to continue taking math later in their high school careers, whereas their self-concepts of ability in math did not predict enrollment decisions.

Eccles, Barber, Updegraff, and O'Brien (1998) extended these findings to other achievement domains, utilizing data from the Michigan Study of Adolescent Transitions (MSALT). They examined how adolescents' ability beliefs and values predicted their choices of participation in team sports in high school, taking honors math classes, and taking physical science classes. A particular focus of their work was on explaining gender differences in these choices; in each case boys chose to participate in these activities more than did girls. Adolescents' valuing of the activity, particularly their utility value, was the strongest predictor of student choice. Students' math ability beliefs predicted choice of honors math classes and participation in team sports, but the predictive relations were weaker than those for utility value and choice. Inclusion of the value and ability belief variables in the path models mediated the gender effect; the direct path from gender to choice no longer was significant when the value and ability belief variables were included.

Expectancies, Values, and the Self-Regulation of Behavior

Most of our empirical work to date has examined how children's competence beliefs and values relate to course grades and course enrollment decisions. In this empirical work we have not examined processes that could explain the relations obtained. Wigfield (1994b) provided a micro-level analysis of the relations of children's achievement values and their achievement behaviors that suggests the kinds of processes that could be involved. Among other things, he suggested that students who value different academic activities likely will study harder and more effectively. They also should continue to pursue goals they have set even if they encounter difficulties.

More recently, Wigfield and Eccles (2002b) expanded on this analysis by discussing potential links between children's expectancies and values and the specific ways they regulate their achievement behaviors. They suggested that the work on how expectancies and values influence performance and choice could be integrated with recent theoretical models of the self-regulation process (see Boekaerts, Pintrich, & Zeidner, 2000, for review of the work on self-regulation). One essential part of behavioral reg-

ulation is choice of whether or not to continue to do different activities. Such choices can be complex in real-world achievement situations where there are many uncertainties about probable outcomes (see Busemyer & Townsend, 1993, and Byrnes, 1998, for discussion of complex decision making under uncertainty). Theorists who have developed models of self-regulation argue that the decision about whether to continue or discontinue an activity often comes as individuals reflect back on their perfoemance and evaluate the outcomes they attained (see Scheier & Carver, 2000; Schunk & Ertmer, 2000; Zimmerman, 2000). A number of self-regulation theorists discuss how such evaluations can influence individuals' perceptions of competence regarding the activity, and that competence beliefs themselves can influence the evaluations. We believe also that students' values play a strong role in students' reflections about their performance and in their choices of activities. When an activity is valued, students likely attend more carefully to how they are doing, invest more time, and try to understand why they obtained the outcome that they did. Such elaborate processing may be less likely for activities that are valued less. The mediating role of values on the regulation of behavior deserves further study (see Wigfield & Eccles, 2002b).

Expectancies, Values, and the Decision to Stay in School

We have focused so far in this section on relatively narrow educational choices, such as how much to study or which course to take. How do adolescents' expectancies and values relate to their broader educational choices? Feather (1988) found that college students' valuing of math (and math ability beliefs) predicted choice of science-related majors, with ability beliefs having a stronger predictive link than values. English values predicted strongly the students' choice to enroll in humanities courses. Feather also found that students' broader values related to the kinds of educational experiences students enjoyed having.

One essential question for researchers interested in adolescents' expectancies and values is how those beliefs relate to the decisions students make to stay in or drop out of school. Most researchers examining how students' beliefs relate to dropping out of school have focused on students' general self-esteem, a construct that can be ill-defined and is influenced by so many factors that it might not have much predictive utility in explaining specific decisions like dropping out of school (see Finn, 1989, for a critique of the self-esteem explanation of dropping out of school). In one step toward greater specificity of measurement in this area, Vallerand, Fortier, and Guay (1997) measured adolescents' perceived competence and intrinsic motivation in school, and related these to the decision to stay in school or

drop out. They found that high school students who eventually dropped out had lower perceived academic competence than did those who persisted in school. Dropouts also had lower scores on measures of intrinsic and extrinsic motivation, as well as perceived social support and autonomy, showing the complexity of the issue.

We would argue that students' valuing of achievement likely has an important influence on this decision. From our research we know that students who do not value math will be more likely to opt out of math when they no longer have to take it. It may be the case that students who begin to have difficulties in middle school and high school could initially come to devalue individual school subjects. If they continue to struggle they may begin to devalue school in general, which could lead them to drop out when that option becomes available to them. For children who never did well, their valuing of specific subject areas and school likely never was high, or dropped very quickly across the school years, again leading them to devalue the whole educational enterprise.

Certainly, other factors besides achievement beliefs and values, such as the economic pressure many poor students face, discrimination, and bad schools, play a major role in the decision to drop out (see Finn, 1989; Rumberger, 1987). Yet the relative contribution of both specific achievement values and more general valuing of education also are likely to play a significant role, one that has not been addressed sufficiently.

CONCLUSION

We have reviewed work on adolescents' competence-related beliefs, expectancies for success, and achievement values in this chapter. We discussed how adolescents' beliefs and values change, and gender differences in these beliefs and values. We also discussed the impact of school transitions on adolescents' competence-related beliefs and values, and how middle school reform efforts are focusing on enhancing these aspects of children's motivation. We hope readers can see that much has been learned both about the nature of children's competence-related beliefs and values and how they are influenced by the educational experiences students have. Yet much remains to be done, particularly with respect to better understanding how educational reform efforts at middle and high school are influencing not only adolescents' achievement but also their beliefs and values about their achievement. We look forward to learning about and participating in the next generation of research on these important topics.

REFERENCES

Alspaugh, J. W. (1998). Achievement loss associated with the transition to middle school and high school. *Journal of Educational Research, 92,* 20–25.

Anderman, E. M., Maehr, M. L., & Midgley, C. (1999). Declining motivation after the transition to middle school: Schools can make a difference. *Journal of Research and Development in Education, 32,* 131–147.

Arnett, J. J. (1999). Adolescent storm and stress, reconsidered. *American Psychologist, 54,* 317–326.

Assor, A., & Connell, J. P. (1992). The validity of students' self-reports as measures of performance affecting self-appraisals. In D. H. Schunk & J. L. Meece (Eds.), *Student self-perceptions in the classroom* (pp. 25–47). Hillsdale, NJ: Erlbaum.

Atkinson, J. W. (1957). Motivational determinants of risk taking behavior. *Psychological Review, 64,* 359–372.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Barone, C., Aguirre-Deandreis, A. I., & Trickett, E. J. (1991). Growing up the hard way: Pathways of urban adolescents. *American Journal of Community Psychology, 19,* 207–225.

Battle, A., & Wigfield, A. (in press). College women's value orientations toward family, career, and the pursuit of graduate school. *Journal of Vocational Behavior.*

Battle, E. (1965). Motivational determinants of academic task persistence. *Journal of Personality and Social Psychology, 2,* 209–218.

Battle, E. (1966). Motivational determinants of academic competence. *Journal of Personality and Social Psychology, 4,* 534–642.

Blos, P. (1979). *The adolescent passage.* New York: International Universities Press.

Blumenfeld, P., Pintrich, P. R., Meece, J., & Wessels, K. (1982). The formation and role of self-perceptions of ability in elementary school classrooms. *Elementary School Journal, 82,* 401–420.

Blyth, D. A., Simmons, R. G., & Carlton-Ford, S. (1983) The adjustment of early adolescents to school transitions. *Journal of Early Adolescence, 3,* 105–120.

Boekaerts, M., Pintrich, P. R., & Zeidner, M. (2000). Self-regulation: An introductory overview. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 1–9). San Diego: Academic Press.

Bong, M. (2001). Between- and within-domain relations of academic motivation among middle and high school students: Self-efficacy, task value, and achievement goals. *Journal of Educational Psychology, 93,* 23–34.

Bryk, A. S., Lee, V. E., & Holland, P. B. (1993). *Catholic schools and the common good.* Cambridge, MA: Harvard University Press.

Busemeyer, J. R., & Townsend, J. T. (1993). Decision field theory: A dynamic-cognitive approach to decision making in an uncertain environment. *Psychological Review, 100,* 432–459.

Byrnes, J. B. (1988). Formal operations: A systematic reformulation. *Developmental Review, 8,* 1–22.

Byrnes, J. B. (1998). *The nature and development of self-regulated decision making.* Mahwah, NJ: Erlbaum.

Covington, M. V. (1984). The self-worth theory of achievement motivation: Findings and implications. *Elementary School Journal, 85,* 5–20.

Covington, M. V. (1992). *Making the grade: A self-worth perspective on motivation and school reform.* New York: Cambridge University Press.

Crandall, V. C. (1969). Sex differences in expectancy of intellectual and academic reinforcement. In C. P. Smith (Ed.), *Achievement-related motives in children* (pp. 11–45). New York: Russell Sage Foundation.

Crandall, V. C., Katkovsky, W., & Crandall, V. J. (1965). Children's beliefs in their own control of reinforcements in intellectual-academic achievement situations. *Child Development, 36,* 91–109.

Crandall, V. J., Dewey, R., Katkovsky, W., & Preston, A. (1964). Parents' attitudes and behaviors and grade school children's academic achievements. *Journal of Genetic Psychology, 104,* 53–66.

Dauber, S. L., & Benbow, C. P. (1990). Aspects of personality and peer relations of extremely talented adolescents. *Gifted Child Quarterly, 34,* 10–15.

Dornbusch, S. M., Petersen, A. C., & Hetherington, E. M. (1991). Projecting the future of research on adolescence. *Journal of Research on Adolescence, 1,* 7–18.

Dweck, C. S. (2002). The development of ability conceptions. In A. Wigfield & J. S. Eccles (Eds.), *The development of achievement motivation.* San Diego, CA: Academic Press.

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In P. H. Mussen (Ed.), *Handbook of child psychology* (3rd ed., Vol. 4, pp. 643–691). New York: Wiley.

Dweck, C. S., & Leggett, E. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95,* 256–273.

Early, D. M., Belansky, E., & Eccles, J. S. (1992, March). *The impact of gender stereotypes on perceived ability and attributions for success.* Poster presented at the Biennial Meeting of the Society for Research on Adolescence, Washington DC.

Eccles, J. S. (1984). Sex differences in achievement patterns. In T. Sonderegger (Ed.), *Nebraska Symposium on Motivation* (Vol. 32, pp. 97–132). Lincoln: University of Nebraska Press.

Eccles, J. S. (1993). School and family effects on the ontogeny of children's interests, self-perceptions, and activity choice. In J. Jacobs (Ed.), *Nebraska Symposium on Motivation, 1992: Developmental perspectives on motivation* (pp. 145–208). Lincoln: University of Nebraska Press.

Eccles, J. S., Adler, T. F., Futterman, R., Goff, S. B., Kaczala, C. M., Meece, J., & Midgley, C. (1983). Expectancies, values and academic behaviors. In J. T. Spence (Ed.), *Achievement and achievement motives* (pp. 75–146). San Francisco: Freeman.

Eccles, J. S., Adler, T. F., & Meece, J. L. (1984). Sex differences in achievement: A test of alternate theories. *Journal of Personality and Social Psychology, 46,* 26–43.

Eccles, J. S., Barber, B. L., Updegraff, K., & O'Brien, K. M.. (1998). An expectancy-value model of achievement choices: The role of ability self-concepts, perceived task utility and interest in predicting activity choice and course enrollment. In L. Hoffman, A. Krapp, & K. A. Renninger (Eds.), *Interest and learning: Proceedings of the Seeon conference on interest and gender.* Kiel, Germany: Institute for Science Education, University of Kiel.

Eccles, J. S., & Harold, R. D. (1991). Gender differences in sport involvement: Applying the Eccles' expectancy-value model. *Journal of Applied Sport Psychology, 3,* 7–35.

Eccles, J. S., & Midgley, C. (1989). Stage/environment fit: Developmentally appropriate classrooms for early adolescents. In R. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 3, pp. 139–181). New York: Academic Press.

Eccles, J., Midgley, C., & Adler, T. (1984). Grade-related changes in the school environment: Effects on achievement motivation. In J. G. Nicholls (Ed.), *The development of achievement motivation* (pp. 283–331). Greenwich, CT: JAI Press.

Eccles, J. S., & Wigfield, A. (1995). In the mind of the achiever: The structure of adolescents' academic achievement related-beliefs and self-perceptions. *Personality and Social Psychology Bulletin, 21*, 215–225.

Eccles, J. S., & Wigfield, A. (1997). Young adolescent development. In J. L. Irvin (Ed.), *What current research says to the middle level practitioner.* Columbus, OH: National Middle School Association.

Eccles, J. S., Wigfield, A., Flanagan, C., Miller, C., Reuman, D., & Yee, D. (1989). Self-concepts, domain values, and self-esteem: Relations and changes at early adolescence. *Journal of Personality, 57*, 283–310.

Eccles, J. S., Wigfield, A., Harold, R., & Blumenfeld, P. B. (1993). Age and gender differences in children's self- and task perceptions during elementary school. *Child Development, 64*, 830–847.

Eccles, J. S., Wigfield, A., & Schiefele, U. (1998). Motivation to succeed. In N. Eisenberg (Vol. Ed.) & W. Damon (Series Ed.), *Handbook of child psychology* (5th ed., Vol. 3, pp. 1017–1095). New York: Wiley.

Eisenberg, N., Martin, C. L., & Fabes, R. A. (1996). Gender development and gender effects. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of educational psychology* (pp. 358–396). New York: Macmillan.

Erikson, E. H. (1963). *Childhood and society.* New York: Norton.

Etaugh, C., & Liss, M. B. (1992). Home, school, and playroom: Training grounds for adult gender roles. *Sex Roles, 18*, 129–147.

Feather, N. T. (1982). Expectancy-value approaches: Present status and future directions. In N. T. Feather (Ed.), *Expectations and actions: Expectancy-value models in psychology* (pp. 395–420). Hillsdale, NJ: Erlbaum.

Feather, N. T. (1988). Values, valences, and course enrollment: Testing the role of personal values within an expectancy-value framework. *Journal of Educational Psychology, 80*, 381–391.

Feather, N. T. (1992). Values, valences, expectations, and actions. *Journal of Social Issues, 48*, 109–124.

Felner, R. D., Ginter, M., & Primavera, J. (1982). Primary prevention during school transitions: Social support and environmental structure. *American Journal of Community Psychology, 10*, 277–290.

Felner, R. D., Primavera, J., & Cauce, A. M. (1981). The impact of school transitions: A focus for preventive efforts. *American Journal of Community Psychology, 9*, 449–459.

Finn, J. D. (1989). Withdrawing from school. *Review of Educational Research, 59*, 117–142.

Gardner, P. L. (1998). The development of males' and females' interests in science and technology. In L. Hoffmann, A. Krapp, K. A. Renninger, & J. Baumert (Eds.), *Interest and learning* (pp. 41–57). Kiel, Germany: Institute for Science Education, University of Kiel.

Hall, G. S. (1904). *Adolescence: Its psychology and its relations to anthropology, sex, crime, religion, and education.* New York: Appleton.

Harter, S. (1978). Effectance motivation reconsidered: Toward a developmental model. *Human Development, 21,* 34–64.

Harter, S. (1982). The Perceived Competence Scale for Children. *Child Development, 53,* 87–97.

Harter, S. (1990). Causes, correlates and the functional role of global self-worth: A life-span perspective. In J. Kolligian & R. Sternberg (Eds.), *Perceptions of competence and incompetence across the life-span* (pp. 67–98). New Haven, CT: Yale University Press.

Hill, J. P., & Lynch, M. E. (1983). The intensification of gender-related role expectations during early adolescence. In J. Brooks-Gunn & A. C. Petersen (Eds.), *Girls at puberty* (pp. 201–228). New York: Plenum Press.

Huston, A. (1983). Sex-typing. In P. H. Mussen (Ed.), *Handbook of child psychology* (Vol. 4, pp. 387–467). New York: Wiley.

Isakson, K., & Jarvis, P. (1999). The adjustment of adolescents during the transition into high school: A short term longitudinal study. *Journal of Youth and Adolescence, 28,* 1–26.

Jacobs, J. E., Lanza, S., Osgood, D. W., Eccles, J. S., & Wigfield, A. (2002). Changes in children's self-competence and values: Gender and domain differences across grades one through twelve. *Child Development.*

Keating, D. P. (1990). Adolescent thinking. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp. 54–89). Cambridge, MA: Harvard University Press.

Lerner, R., M., Entwisle, D. R., & Hauser, S. T. (1994). The crisis among contemporary American adolescents: A call for the integration of research, policies, and programs. *Journal of Research on Adolescence, 4,* 1–4.

Lipsitz, J., Mizell, M. H., Jackson, A. W., & Austin, L. M. (1997). Speaking with one voice: A manifesto for middle-grades reform. *Phi Delta Kappan,* 533–540.

Mac Iver, D. J., & Epstein, J. L. (1993). Middle grades research: Not yet mature, but no longer a child. *Elementary School Journal, 93,* 519–533.

Mac Iver, D. J., & Plank, J. B. (1997). Improving urban schools: Developing the talents of students placed at risk. In J. L. Irvin (Ed.), *What current research says to the middle level practitioner* (pp. 243–256). Columbus, OH: National Middle School Association.

Mac Iver, D. J., Young, E. M., & Washburn, B. (2002). Instructional practices and motivation during middle school (with special attention to science). In A. Wigfield & J. S. Eccles (Eds.), *The development of achievement motivation.* San Diego, CA: Academic Press.

Maehr, M. L., & Midgley, C. (1996). *Transforming school cultures.* Boulder, CO: Westview Press.

Marsh, H. W. (1989). Age and sex effects in multiple dimensions of self-concept: Preadolescence to early adulthood. *Journal of Educational Psychology, 81,* 417–430.

Marsh, H. W., Craven, R. G., & Debus, R. (1991). Self-concepts of young children 5 to 8 years of age: Measurement and multidimensional structure. *Journal of Educational Psychology, 83,* 377–392.

Marsh, H. W., Craven, R. G., & Debus, R. (1998). Structure, stability, and development of young children's self-concepts: A multicohort-multioccasion study. *Child Development, 69*, 1030–1053.

Meece, J. L., Wigfield, A., & Eccles, J. S. (1990). Predictors of math anxiety and its consequences for young adolescents' course enrollment intentions and performances in mathematics. *Journal of Educational Psychology, 82*, 60–70.

Midgley, C., & Edelin, K. C. (1998). Middle school reform and early adolescent well-being: The good news and the bad. *Educational Psychologist, 33*, 195–206.

Moshman, D. (1999). *Adolescent psychological developmental: Rationality, morality, and identity.* Mahwah, NJ: Erlbaum.

Murdock, T. B., Anderman, L. H., & Hog, S. A. (2000). Middle-grade predictors of students' motivation and behavior in high school. *Journal of Adolescent Research, 15*, 327–351.

Newman, B. M., Lehman, B. J., Newman, P. R., Myers, M. C., & Smith, V. L. (2000). Experiences of urban youth navigating the transition to ninth grade. *Youth and Society, 31*, 387–416.

Nicholls, J. G. (1979). Development of perception of own attainment and causal attributions for success and failure in reading. *Journal of Educational Psychology, 71*, 94–99.

Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review, 91*, 328–346.

Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research, 66*, 543–578.

Parsons, J. E., & Goff, S. B. (1980). Achievement motivation and values: An alternative perspective. In L. J. Fans (Ed.), *Achievement motivation* (pp. 349–373). New York: Plenum Press.

Parsons, J. E., & Ruble, D. N. (1977). The development of achievement-related expectancies. *Child Development, 48*, 1075–1079.

Rohan, M. J. (2000). A rose by any name? The values construct. *Personality and Social Psychology Review, 4*, 255–277.

Rokeach, M. (1973). *The nature of human values.* New York: Free Press.

Rokeach, M. (1979). From individual to institutional values with special reference to the values of science. In M. Rokeach (Ed.), *Understanding human values* (pp. 47–70). New York: Free Press.

Ruble, D. (1983). The development of social comparison processes and their role in achievement-related self-socialization. In E. T. Higgins, D. N. Ruble, & W. W. Hartup (Eds.), *Social cognition and social development: A sociocultural perspective* (pp. 134–157). New York: Cambridge University Press.

Ruble, D. N., & Martin, C. L. (1998). Gender development. In W. Damon (Series Ed.) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology* (5th ed., Vol. 3, pp. 933–1016). New York: Wiley.

Rumberger, R. W. (1987). High school dropouts: A review of issues and evidence. *Review of Educational Research, 57*, 101–122.

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivators: Classic definitions and new directions. *Contemporary Educational Psychology, 25*, 54–67.

Scheier, C. S., & Carver, M. F. (2000). On the structure of behavioral self-regulation. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 41–84). San Diego, CA: Academic Press.

Schiller, K. S. (1999). Effects of feeder patterns on students' transition to high school. *Sociology of Education, 72*, 216–233.

Schunk, D. H., & Ertmer, P. A. (2000). Self-regulation and academic learning: Self-efficacy enhancing interventions. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 631–649). San Diego, CA: Academic Press.

Schunk, D. H., & Lilly, M. V. (1982, April). *Attributional and expectancy change in gifted adolescents.* Paper presented at the Annual Meeting of the American Educational Research Association. New York.

Schwartz, S. H. (1992). Universals in the content and structure of values: Theoretical advances in empirical tests in 20 countries. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (Vol. 24, pp. 1–65). San Diego, CA: Academic Press.

Seidman, E., Aber, J. L., Allen, L., & French, S. E. (1996). The impact of the transition to high school on the self-esteem and perceived social context of poor urban youth. *American Journal of Community Psychology, 24*, 489–515.

Shaklee, H., & Tucker, D. (1979). Cognitive bases of development in inferences of ability. *Child Development, 50*, 904–907.

Skinner, E. A., Zimmer-Gembeck, M. J., & Connell, J. P. (1998). Individual differences and the development of perceived control. *Monographs of the Society for Research in Child Development* (*63*, Serial No. 254).

Smith, J. B. (1997). Effects of eighth-grade transition programs on high school retention and experiences. *Journal of Educational Research, 90*, 144–152.

Stipek, D. J. (1984). The development of achievement motivation. In R. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 1, pp. 145–174). New York: Academic Press.

Stipek, D. J., & Mac Iver, D. (1989). Developmental change in children's assessment of intellectual competence. *Child Development, 60*, 521–538.

Vallerand, R. J., Fortier, M. S., & Guay, F. (1997). Self-determination and persistence in a real-life setting: Toward a motivational model of high school dropout. *Journal of Personality and Social Psychology, 72*, 1161–1176.

Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71*, 3–25.

Weiner, B., (1985). An attributional theory of achievement motivation and emotion. *Psychological Review, 92*, 548–573.

Wigfield, A. (1994a). Expectancy-value theory of achievement motivation: A developmental perspective. *Educational Psychology Review, 6*, 49–78.

Wigfield, A. (1994b). The role of children's achievement values in the self-regulation of their learning outcomes. In D. H Schunk & B. Zimmerman (Eds.), *Self-regulation of learning and performance: Issues and educational applications* (pp. 101–124). Hillsdale, NJ: Erlbaum.

Wigfield, A., Battle, A., Keller, L., & Eccles, J. S. (2002). Sex differences in motivation, self-concept, career aspirations, and career choice: Implications for cognitive development. In A. McGillicuddy-De Lisi & R. De Lisi (Eds.), *Biology,*

society, and behavior: The development of sex differences in cognition (pp. 93–124) Westport, CT: Ablex Publishing.

Wigfield, A., & Eccles, J. S. (1992). The development of achievement task values: A theoretical analysis. *Developmental Review, 12,* 265–310.

Wigfield, A., & Eccles, J. S. (2000). Expectancy-value theory of motivation. *Contemporary Educational Psychology, 25,* 68–81.

Wigfield, A., & Eccles, J. S. (2002a). Children's motivation during the middle school years. In J. Aronson (Ed.), *Improving academic achievement: Contributions of social psychology.* San Diego, CA: Academic Press.

Wigfield, A., & Eccles, J. S. (2002b). The development of competence beliefs, expectancies for success, and achievement value from childhood through adolescence. In A. Wigfield & J. S. Eccles (Eds.), *The development of achievement motivation.* San Diego, CA: Academic Press.

Wigfield, A., Eccles, J., Mac Iver, D., Reuman, D., & Midgley, C. (1991). Transitions at early adolescence: Changes in children's domain-specific self-perceptions and general self-esteem across the transition to junior high school. *Developmental Psychology, 27,* 552–565.

Wigfield, A., Eccles, J. S., & Pintrich, P. R. (1996). Development between the ages of eleven and twenty-five. In D. C.. Berliner & R.C. Calfee (Eds.), *Handbook of educational psychology.* New York: MacMillan.

Wigfield, A., Eccles, J. S., Yoon, K. S., Harold, R. D., Arbreton, A., Freedman-Doan, C., & Blumenfeld, P. C. (1997). Changes in children's competence beliefs and subjective task values across the elementary school years: A three-year study. *Journal of Educational Psychology, 89,* 451–469.

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P. R. Pintrich, & M. Zeidner (Eds.), *Handbook of self-regulation* (pp. 13–39). San Diego, CA: Academic Press.

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